IN THE CLAIMS

1. (currently amended) A method for facilitating reconstruction of an image, said method comprising:

estimating a gradient for at least one high-density object;

generating a gradient image using the estimated gradient wherein the gradient image represents a variation of the high density object in z; and

generating an error-candidate projection using the gradient image.

2. (original) A method in accordance with Claim 1 wherein to generate an error-candidate projection, said method further comprises forward projecting the gradient along β wherein β represents a projection view angle.

3. (original) A method in accordance with Claim 2 further comprising scaling the error-candidate projection with an error fraction based upon the β.

4. (original) A method in accordance with Claim 3 further comprising scaling the error-candidate projection with an error fraction c_β such that $c_\beta = z - int(z)$, where $z = \frac{(\beta - \beta_c)p}{2\pi} + \frac{M+1}{2}$, wherein β_c represents a center view angle, p is the pitch, int(z) represents the integer portion of z, and M represents the number of rows in a detector array.

5. (original) A method in accordance with Claim 2 further comprising reconstructing an error image using the error-candidate projection.

6. (original) A method in accordance with Claim 5 further comprising generating a final image by scaling the error image and subtracting the scaled error image from an original image.

7. (original) A method in accordance with Claim 1 wherein estimating a gradient for a high-density object comprises estimating a gradient for a high-density object such that $g(i,j) = d_-(i,j) + d_+(i,j) - 2d(i,j)$, where $g(i,j)$ represents the gradient estimate for the (i,j) pixel and $d_-(i,j)$, $d_+(i,j)$, and $d(i,j)$ are determined according to:

$$d_{-}(i,j)=\begin{cases} f_{-}(i,j)-h, & f_{-}(i,j)\geq h \\ 0 & otherwise \end{cases}$$

$$d(i,j)=\begin{cases} f\ (i,j)-h, & f\ (i,j)\geq h \\ 0 & otherwise \end{cases}$$

$$d_{+}(i,j)=\begin{cases} f_{+}(i,j)-h, & f_{+}(i,j)\geq h \\ 0 & otherwise \end{cases}$$

where f, f_{-}, and f_{+} represent three images separated by a spacing s with f being between f_{-} and f_{+}, and h is a pre-determined threshold value.

8. (original) A method in accordance with Claim 2 further comprising helically weighting the error candidate image.

9. (original) A method in accordance with Claim 2 wherein said forward projecting the gradient along β comprises performing at least one of a fan beam forward projection and a parallel beam forward projection.

10. (original) A method in accordance with Claim 1 further comprising producing different gradient images using a segmentation technique.

11. (original) A method in accordance with Claim 10 wherein said producing different gradient images using a segmentation technique comprises:

separating at least two different classes of objects including a first class and a second class;

using a first contrast threshold value for the first class; and

using a second contrast threshold value different from the first contrast threshold value for the second class.

12. (original) A method in accordance with Claim 7 further comprising using more than three adjacent images to produce a gradient image.

13. (currently amended) A computer programmed to:

estimate a gradient for at least one high-density object;

generate a gradient image using the estimated gradient wherein the gradient image represents a variation of the high density object in z; and

generate an error-candidate projection using the gradient image.

14. (original) A computer in accordance with Claim 13 further programmed to forward project the gradient along β wherein β represents a projection view angle.

15. (original) A computer in accordance with Claim 14 further programmed to scale the error-candidate projection with an error fraction based upon the β.

16. (original) A computer in accordance with Claim 15 further programmed to scale the error-candidate projection with an error fraction c_β such that $c_\beta = z - int(z)$, where $z = \frac{(\beta - \beta_c)p}{2\pi} + \frac{M+1}{2}$, wherein β_c represents a center view angle, p is the pitch, int(z) represents the integer portion of z, and M represents the number of rows in a detector array.

17. (original) A computer in accordance with Claim 15 further programmed to reconstruct an error image using the error-candidate projection.

18. (original) A computer in accordance with Claim 17 further programmed to generate a final image by scaling the error image and subtracting the scaled error image from an original image.

19. (original) A computer in accordance with Claim 17 further programmed to perform at least one of a fan beam forward projection and a parallel beam forward projection.

20. (original) A computer in accordance with Claim 14 further programmed to estimate a gradient for a high-density object such that

$g(i,j) = d_-(i,j) + d_+(i,j) - 2d(i,j)$, where $g(i,j)$ represents the gradient estimate for the (i,j) pixel and $d_-(i,j)$, $d_+(i,j)$, and $d(i,j)$ are determined according to:

$$d_-(i,j) = \begin{cases} f_-(i,j) - h, & f_-(i,j) \geq h \\ 0 & otherwise \end{cases}$$

$$d(i,j) = \begin{cases} f\ (i,j) - h, & f\ (i,j) \geq h \\ 0 & otherwise \end{cases}$$

$$d_+(i,j) = \begin{cases} f_+(i,j) - h, & f_+(i,j) \geq h \\ 0 & otherwise \end{cases}$$

where f, f_-, and f_+ represent three images separated by a spacing s with f being between f_- and f_+, and h is a pre-determined threshold value.

21. (original) A computer in accordance with Claim 14 further programmed to:

separate at least two different classes of objects including a first class and a second class;

use a first contrast threshold value for the first class; and

use a second contrast threshold value different from the first contrast threshold value for the second class.

22. (currently amended) A computed tomographic (CT) imaging system for reconstructing an image of an object, said imaging system comprising:

a detector array;

at least one radiation source; and

a computer coupled to said detector array and said radiation source, said computer configured to:

estimate a gradient for at least one high-density object;

generate a gradient image using the estimated gradient wherein the gradient image represents a variation of the high density object in z; and

generate an error-candidate projection using the gradient image.

23. (original) A CT imaging system in accordance with Claim 22 wherein said computer is further programmed to forward project the gradient along β wherein β represents a projection view angle.

24. (original) A CT imaging system in accordance with Claim 23 wherein said computer is further programmed to scale the error-candidate projection with an error fraction based upon the β.

25. (original) A CT imaging system in accordance with Claim 24 wherein said computer is further programmed to scale the error-candidate projection with an error fraction c_β such that $c_\beta = z - int(z)$, where $z = \frac{(\beta - \beta_c)p}{2\pi} + \frac{M+1}{2}$, wherein β_c represents a center view angle, p is the pitch, int(z) represents the integer portion of z, and M represents the number of rows in a detector array.

26. (currently amended) A CT imaging system in accordance with Claim 25 wherein said computer is further programmed to:

reconstruct an error image using the error-candidate projection; and

generate a final image by scaling the error image and subtracting the scaled error image from an original image.